

REMARKS/ARGUMENTS

Claims 1-6, 9 and 10 are pending. By this Amendment, claims 7 and 8 are cancelled, and claims 1-6, 9 and 10 are amended. Support for the amendments to claims 1-6, 9 and 10 can be found, for example, in original claims 1-6, 9 and 10. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Rejection Under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 2-4 and 6-10 as indefinite under 35 U.S.C. §112, second paragraph. By this Amendment, claims 7 and 8 are cancelled, rendering the rejection moot as to those claims, and claims 2-4, 6, 9 and 10 are amended to obviate the rejection. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §102

The Office Action rejects claims 1-4 under 35 U.S.C. §102(b) over U.S. Patent No. 4,072,712 to Meisert et al. ("Meisert"). Applicants respectfully traverse the rejection.

Claim 1 recites "[a] process for preparing a substance including a carbodiimide group from an isocyanate, comprising employing at least one of water, a water-containing substance and a water-releasing substance as a catalyst" (emphasis added). Claim 2 recites "[a] process for preparing a substance including a carbodiimide group from a isocyanate, comprising: reacting a mixture of: A) at least one starting compound having at least one isocyanate group; B) at least one catalyst comprising at least one of water, a water-containing substance and a water-releasing substance ..." (emphasis added). Meisert does not disclose or suggest such processes.

As indicated, in each of claims 1 and 2, a substance including a carbodiimide group is prepared from an isocyanate using water, a water-containing substance or a water-releasing substance as a catalyst. The Office Action asserts that Meisert discloses a method in which carbodiimides are formed by reacting polyisocyanates in the presence of urea catalysts. *See* Office Action, page 3. However, Meisert does not disclose a method in which water, a water-containing substance or a water-releasing substance is used as a catalyst.

It is well-known that water reacts with isocyanates to form carbamic acid, which at higher temperatures decomposes to form CO<sub>2</sub> and amine; the amine, in turn, reacts with further isocyanate to form urea. The Office Action appears to assert that this complex mixture of five (possibly six) substances (water, carbamic acid, amine, CO<sub>2</sub>, urea and possibly a water-containing substance) is catalytically active only on the basis of the urea present in the mixture – i.e., that the disclosure of using urea as a catalyst suggests using water as a catalyst. *See, e.g.*, Office Action, page 5. However, there is no basis for this assertion.

Rather, the results in the present specification indicate that using water as a catalyst (Examples 1 and 5) results in formation of 1.5 times more carbodiimide than is formed when amines (Example 2) or ureas (Example 3) are employed. *See* present specification, page 5. The results in the present specification further indicate that using a water-containing substance as a catalyst (Example 4) results in formation of 3 times more carbodiimide than is formed when amines (Example 2) or ureas (Example 3) are employed. *See id.* The surprising effect achieved by employing water and water-containing substances can not be explained by urea catalysis alone. Moreover, this surprising effect is not remotely disclosed or suggested by Meisert (or any of the other cited references). Thus, the disclosure of employing urea catalysts to form carbodiimides from polyisocyanates would not have led a skilled artisan to obtain the methods of claims 1 and 2.

As explained, claims 1 and 2 are not anticipated by Meisert. Claims 3 and 4 depend from claim 2 and, thus, also are not anticipated by Meisert. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §103

A. Meisert, Narayan and Dunwald

The Office Action rejects claims 1, 5 and 8-10 under 35 U.S.C. §103(a) over Meisert in view of U.S. Patent No. 4,228,095 to Narayan ("Narayan") and U.S. Patent No. 5,126,479 to Dunwald et al. ("Dunwald"). By this Amendment, claim 8 is cancelled, rendering the rejection moot as to that claim. As to the remaining claims, Applicants respectfully traverse the rejection.

For the reasons discussed above, Meisert fails to disclose or suggest each and every feature of claims 1 and 2. Narayan and Dunwald do not remedy the deficiencies of Meiser. Narayan is cited for its alleged disclosure of using organometallic catalysts to promote carbodiimide production. *See* Office Action, page 4. Dunwald is cited for its alleged disclosure of using particular isocyanates and organometallic catalysts in preparing carbodiimides. *See* Office Action, pages 3 and 4. However, Narayan and Dunwald, like Meisert, do not disclose or suggest preparing a carbodiimide from an isocyanate using water, a water-containing substance or a water-releasing substance as a catalyst. Accordingly, the combination of references fails to disclose or suggest each and every feature of claims 1 and 2.

As explained, claims 1 and 2 would not have been rendered obvious by Meisert, Narayan and Dunwald. Claims 5, 9 and 10 depend from claim 2 and, thus, also would not have been rendered obvious by Meisert, Narayan and Dunwald. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Hennig

The Office Action rejects claims 1-5, 7 and 8 under 35 U.S.C. §103(a) over U.S. Patent No. 3,640,966 to Hennig et al. ("Hennig"). By this Amendment, claims 7 and 8 are cancelled, rendering the rejection moot as to those claims. As to the remaining claims, Applicants respectfully traverse the rejection.

Claims 1 and 2 are set forth above. Hennig does not disclose or suggest such methods.

Hennig, like Meisert, is relied upon for its alleged disclosure of a method in which carbodiimides are formed by reacting polyisocyanates in the presence of urea catalysts. *See* Office Action, page 4. However, Hennig does not disclose a method in which water, a water-containing substance or a water-releasing substance is used as a catalyst. Moreover, for the reasons discussed above with respect to Meisert, Hennig's disclosure of employing urea catalysts to form carbodiimides from polyisocyanates would not have led a skilled artisan to employ water, water-containing substances or water-releasing substances as catalysts, as would be required to obtain the methods of claims 1 and 2.

As explained, claims 1 and 2 would not have been rendered obvious by Hennig. Claims 3-5 depend from claim 2 and, thus, also would not have been rendered obvious by Hennig. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Hennig and Orywol

The Office Action rejects claims 1 and 6 under 35 U.S.C. §103(a) over Hennig in view of U.S. Patent No. 4,720,519 to Orywol et al. ("Orywol"). Applicants respectfully traverse the rejection.

For the reasons discussed above, Hennig fails to disclose or suggest each and every feature of claims 1 and 2. Orywol does not remedy the deficiencies of Hennig. Orywol is cited for its alleged disclosure of incorporating water-containing zeolites in polyisocyanate compositions. *See* Office Action, pages 5 to 6. However, Orywol, like Hennig, does not disclose or suggest preparing a carbodiimide from an isocyanate using water, a water-containing substance or a water-releasing substance as a catalyst. Applicants note, in particular, that the mere disclosure of the well-known fact that molecular sieves are able to absorb and release water does not remotely indicate that such materials would have any value in the production of carbodiimides. Accordingly, the combination of references fails to disclose or suggest each and every feature of claims 1 and 2.

As explained, claims 1 and 2 would not have been rendered obvious by Hennig and Orywol. Claim 6 depends from claim 2 and, thus, also would not have been rendered obvious by Hennig and Orywol. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

D. Hennig, Narayan and Dunwald

The Office Action rejects claims 1, 9 and 10 under 35 U.S.C. §103(a) over Hennig in view of Narayan and Dunwald. Applicants respectfully traverse the rejection.

For the reasons discussed above, Hennig fails to disclose or suggest each and every feature of claims 1 and 2. Narayan and Dunwald do not remedy the deficiencies of Hennig. Narayan is cited for its alleged disclosure of using organometallic catalysts to promote carbodiimide production. *See* Office Action, page 6. Dunwald is cited for its alleged disclosure of using organometallic catalysts in preparing carbodiimides. *See* Office Action, page 6. However, Narayan and Dunwald, like Hennig, do not disclose or suggest preparing a carbodiimide from an isocyanate using water, a water-containing substance or a water-

releasing substance as a catalyst. Accordingly, the combination of references fails to disclose or suggest each and every feature of claims 1 and 2.

As explained, claims 1 and 2 would not have been rendered obvious by Hennig, Narayan and Dunwald. Claims 9 and 10 depend from claim 2 and, thus, also would not have been rendered obvious by Hennig, Narayan and Dunwald. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For the foregoing reasons, Applicants submit that claims 1-6, 9 and 10 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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